CLAIMS

1. A method of measuring jitter in a digital signal comprising:

forming an offset reference clock signal (101, 102, 103), being offset by a predetermined frequency amount from said digital signal;

sampling (110) said digital signal at sampling times determined by said offset reference clock signal, such that, in the absence of jitter and said offset by a predetermined frequency, there are a predetermined number of sampling times in each bit of said digital signal;

detecting (113, 114) occasions when the number of sampling times in any bit of said digital signal is different from said predetermined number;

counting (119) said occasions over a predetermined time, and

deriving (121) at least one measure of jitter from said counting of said occasions.

2. A method according to claim 1, wherein said offset reference clock signal is formed by extracting (101) a clock signal from said digital signal and offsetting (102) said clock signal by said predetermined frequency.

3. A method according to claim 2, further including smoothing (103) said offset reference clock signal.

4. A method according to any one of said preceding claims, wherein said sampling times are determined by an integer multiple of the frequency of said offset reference clock signal.

5. A method according to claim 4, wherein said sampling the times are at clock bit intervals being plus and minus one of said integer multiple.

6. A method according to any one of the preceding claims, wherein the predetermined time is inversely proportional to the product of the bit rate of the digital signal and the predetermined frequency amount.

7. A method according to any one of the preceding claims, wherein one of said at least one measure of jitter is obtained by counting up one value for each of said occasions representing sampling times greater than the predetermined number within a bit, counting down one value for each of said occasions representing sampling times less than the predetermined number within a bit and determining the difference between the maximum count value and the minimum count value.

8. A method according to any one of the preceding claims, wherein one of said at least one measure of

jitter is obtained by counting up one value for each of said occasions representing sampling times greater than the predetermined number within a bit, counting down one value for each of said occasions representing sampling times less than the predetermined number within a bit and determining the time difference between the first occasion of the maximum count value and the last occasion of the minimum count value.

9. A method according to claim 8 as dependent on claim 4, wherein the time difference is divided by said integer multiple and said predetermined time.

10. An apparatus for measuring jitter in a digital signal comprising:

means (101, 102, 103) for forming an offset reference clock signal, which clock signal is offset by a predetermined frequency amount from said digital signal;

means (110) for sampling said digital signal at sampling times determined by said offset reference clock signal, such that, in the absence of jitter and said offset by a predetermined frequency, there are a predetermined number of sampling times in each bit of said digital signal;

means (112, 114) for detecting occasions when the number of sampling times in any bit of said digital

signal is different from said predetermined number; and

means (119) for counting said occasions over a predetermined time, and

means (121) for deriving at least one measure of jitter from said means for counting of said occasions.

11. An apparatus according to claim 10, wherein said means for forming said offset reference clock signal comprises means (102) for extracting a clock signal from said digital signal and means (102) for offsetting the clock signal by said predetermined frequency.

12. An apparatus according to claim 11, wherein said means for forming said offset reference clock signal includes means (103) for smoothing said offset reference clock signal.

13. An apparatus according to any one of claims 10 to 12, wherein said means (121) for deriving one of said at least one measure of jitter comprises means for counting up one value for each of said occasions representing sampling times greater than said predetermined number within a bit and for counting down one value for each of said occasions representing sampling times less than the predetermined number within a bit and means for determining the difference between the maximum count

value and the minimum count value.

14. An apparatus according to any one of claims 10 to 12, wherein said means (101) for deriving one of said at least one measure of jitter comprises means for counting up one value for each of said occasions representing sampling times greater than the predetermined number within a bit and for counting down one value for each of said occasions representing sampling times less than the predetermined number within a bit and means for determining the time difference between the first occasion of the maximum count value and the last occasion of the minimum count value.

15. An apparatus for measuring jitter in a digital signal comprising:

an offset unit (101, 102, 103) arranged to form an offset reference clock signal, being offset by a predetermined frequency amount from said digital signal;

a sampler (110) arranged to sample said digital signal at sampling times determined by said offset reference clock signal such that, in the absence of jitter and said offset by a predetermined frequency, there are a predetermined number of sampling times in each bit of said digital signal;

at least one detector (113, 114) arranged to detect

occasions when the number of sampling times in any bit of said digital signal is different from said predetermined number;

a counter (119) arranged to count said occasions over a predetermined time, and

an analyser (121) arranged to derive at least one measure of jitter from said counting of said occasions.

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